IN THE CLAIMS:

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~strikethrough~~. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered). Please AMEND claims and ADD new claims, in accordance with the following:

1. (ORIGINAL) A conductor substrate for mounting a semiconductor element, at least a portion thereof mounting said semiconductor element being sealed with an insulating resin, wherein an uppermost surface layer of said conductor substrate comprises copper or an alloy thereof, and said conductor substrate is partly or entirely covered with a layer of copper oxide containing a hydroxide formed upon surface treatment of said conductor substrate.

2. (ORIGINAL) A conductor substrate according to claim 1, wherein said conductor substrate substantially comprises copper or an alloy thereof.

3. (ORIGINAL) A conductor substrate according to claim 1, wherein said conductor substrate substantially comprises a non-copper metal and the uppermost surface layer of said conductor substrate comprises copper or an alloy thereof.

4. (PREVIOUSLY PRESENTED) A conductor substrate according to claim 1, wherein said surface treatment is a forced oxidation treatment which comprises immersing said conductor substrate in a black oxide treatment solution having added thereto an oxidizing agent having excellent self-reducing force.

5. (PREVIOUSLY PRESENTED) A conductor substrate according to claim 1, wherein said surface treatment is a forced oxidation treatment which comprises anodization of said conductor substrate while immersing said conductor substrate in a black oxide treatment solution.

6. (PREVIOUSLY PRESENTED) A conductor substrate according to claim 1, wherein said insulating resin is a resin comprising a hydroxyl group in the molecule thereof, and a hydrogen bonding force is generated between said hydroxyl group-containing resin and said layer of hydroxide-containing copper oxide.

7. (ORIGINAL) A conductor substrate according to claim 6, wherein said hydroxyl group-containing resin is an epoxy resin.

8. (PREVIOUSLY PRESENTED) A conductor substrate according to claim 1, wherein said conductor substrate is a lead frame.

9. (PREVIOUSLY PRESENTED) A conductor substrate according to claim 1, wherein said layer of hydroxide-containing copper oxide is covering at least a portion of the surface of said conductor substrate except for wire-drawing portions.

10. (PREVIOUSLY PRESENTED) A conductor substrate according to claim 1, wherein said layer of hydroxide-containing copper oxide is covering the whole surface of said conductor substrate.

11. (PREVIOUSLY PRESENTED) A conductor substrate according to claim 1, wherein said conductor substrate is a heat-dissipating plate.

12. (PREVIOUSLY PRESENTED) A conductor substrate according to claim 1, wherein said layer of hydroxide-containing copper oxide has a three-layered structure comprising, in sequence, a cuprous oxide (Cu_2O) layer, a cupric oxide (CuO) layer and a cupric hydroxide ($Cu(OH)_2$) layer from the side of said conductor substrate.

13. (PREVIOUSLY PRESENTED) A conductor substrate according to claim 1, wherein said layer of hydroxide-containing copper oxide has a thickness in a range of 0.02 to 0.2 μm.

14. (PREVIOUSLY PRESENTED) A conductor substrate according to claim 1, wherein no segregated layer is formed between said conductor substrate and said layer of hydroxide-containing copper oxide when treated under a high-temperature condition.15.

15. (PREVIOUSLY PRESENTED) A conductor substrate according to claim 1, wherein said layer of hydroxide-containing copper oxide comprises needle-like crystals having particle sizes of not larger than 0.5 μm.

16. (PREVIOUSLY PRESENTED) A semiconductor device in which at least one semiconductor element is mounted on a predetermined position of a conductor substrate described in claim 1, and said conductor substrate is sealed with an insulating resin.

17. (ORIGINAL) A semiconductor device according to claim 16, wherein said conductor substrate is substantially entirely sealed with said insulating resin.

18. (PREVIOUSLY PRESENTED) A semiconductor device according to claim 16 , wherein said semiconductor device is mounted on a mounting substrate using a solder.

19. (ORIGINAL) A semiconductor device according to claim 18, wherein said solder is a lead-free solder.

20. (ORIGINAL) A method of producing a conductor substrate for mounting a semiconductor element, followed by sealing at least a portion of mounting said semiconductor element with an insulating resin, comprising the step of treating a surface of the conductor substrate, an uppermost surface layer of which is formed of copper or an alloy thereof, to partly or entirely cover the surface of the conductor substrate with a layer of copper oxide containing a hydroxide.

21. (ORIGINAL) A method of producing a conductor substrate according to claim 20, wherein said conductor substrate substantially comprises copper or an alloy thereof.

22. (ORIGINAL) A method of producing a conductor substrate according to claim 20, wherein said conductor substrate substantially comprises a non-copper metal and the uppermost surface layer of said conductor substrate comprises copper or an alloy thereof.

23. (PREVIOUSLY PRESENTED) A method of producing a conductor substrate according to claim 20, wherein said surface treatment step is conducted by immersing said conductor substrate in a black oxide treatment solution having added thereto an oxidizing agent having excellent self-reducing force.

24. (ORIGINAL) A method of producing a conductor substrate according to claim 23, wherein said black oxide treatment solution is a mixture of a strong alkaline compound and an oxidizing agent.

25. (PREVIOUSLY PRESENTED) A method of producing a conductor substrate according to claim 23 , wherein said oxidizing agent having excellent self-reducing force is sodium permanganate, sodium bichromate, sodium peroxodisulfate, or a mixture thereof.

26. (PREVIOUSLY PRESENTED) A method of producing a conductor substrate according to claim 20, wherein said surface treatment step is carried out with an anodization treatment while immersing said conductor substrate in a black oxide treatment solution.

27. (ORIGINAL) A method of producing a conductor substrate according to claim 26, wherein said black oxide treatment solution is a mixture of a strong alkaline compound and an oxidizing agent.

28. (PREVIOUSLY PRESENTED) A method of producing a conductor substrate according to claim 20, wherein said surface treatment step is conducted at a temperature of 50 to 80°C for 1 to 20 seconds.

29. (PREVIOUSLY PRESENTED) A method of producing a conductor substrate according to claim 20, wherein a resin containing a hydroxyl group in the molecules thereof is used as said insulating resin, to thereby produce a hydrogen bonding force between said hydroxyl group-containing resin and a said layer of hydroxide-containing copper oxide.

30. (ORIGINAL) A method of producing a conductor substrate according to claim 29, wherein an epoxy resin is used as said hydroxyl group-containing resin.

31. (PREVIOUSLY PRESENTED) A method of producing a conductor substrate according to claim 20, wherein a lead frame is used as said conductor substrate.

32. (CURRENTLY AMENDED) A method of producing a conductor substrate according to claim 20, wherein said layer of hydroxide-containing copper oxide is applied to cover at least a portion of the surface of said conductor substrate except for wire-drawing portions.

33. (PREVIOUSLY PRESENTED) A method of producing a conductor substrate according to claim 20, wherein said layer of hydroxide-containing copper oxide is applied to cover the whole surfaces of said conductor substrate.

34. (PREVIOUSLY PRESENTED) A method of producing a conductor substrate according to claim 20, wherein a heat-dissipating plate is used as said conductor substrate.

35. (PREVIOUSLY PRESENTED) A method of producing a conductor substrate according to claim 20, wherein said layer of hydroxide-containing copper oxide has a three-layered structure comprising a cuprous oxide (Cu_2O) layer, a cupric oxide (CuO) layer and a cupric hydroxide ($Cu(OH)_2$) layer, in sequence, from the side of said conductor substrate.

36. (PREVIOUSLY PRESENTED) A method of producing a conductor substrate according to claim 20, wherein said layer of hydroxide-containing copper oxide is formed at a thickness in a range of 0.02 to 0.2 μm.

37. (PREVIOUSLY PRESENTED) A method of producing a conductor substrate according to claim 20, wherein no segregated layer is formed between said conductor substrate and said layer of hydroxide-containing copper oxide when treated under a high-temperature condition.

38. (PREVIOUSLY PRESENTED) A method of producing a conductor substrate according to claim 20, wherein said layer of hydroxide-containing copper oxide is constituted from needle-like crystals having particle sizes of not larger than 0.5 μm.

39. (PREVIOUSLY PRESENTED) A method of producing a semiconductor device which comprises the step of forming a layer of hydroxide-containing copper oxide on a conductor substrate by a method descried in claim 20, followed by mounting a semiconductor element on a predetermined position of said conductor substrate, electrically connecting said semiconductor element with said conductor substrate, and sealing at least a portion of said conductor substrate mounting said semiconductor element with an insulating resin.

40. (ORIGINAL) A method of producing a semiconductor device according to claim 39, wherein said conductor substrate is substantially entirely sealed with said insulating resin.